

Appl. No. 10/710,505
Amdt. dated October 4, 2005
Reply to Office action of August 08, 2005

Listing of Claims:

1. (Currently amended) A method for fabricating a buried bit line of a mask ROM, the method comprising:
providing a semiconductor substrate with a photoresist layer coated on the
5 semiconductor substrate;
patterning the photoresist layer to form a photoresist pattern;
performing a first ion implantation process to form a ~~first-doped region~~ lightly doped drain region in the semiconductor substrate not covered by the photoresist pattern;
10 forming an organic non-poly spacer on sidewall of the photoresist pattern;
performing a second ion implantation process to form a ~~second-doped region~~ heavily doped region in the semiconductor substrate not covered by the photoresist pattern and the organic spacer; and
stripping the photoresist pattern and the organic spacer.
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2. (Original) The method of claim 1 further comprising performing a hot treatment process to harden the photoresist pattern after performing the first ion implantation process.
- 20 3. (Original) The method of claim 2 wherein the hot treatment process is an UV curing process or a hot plate process.
4. (Canceled)
- 25 5. (Currently amended) The method of claim 1 wherein the ~~second~~ heavily doped region is an N^+ doped region.
6. (Original) The method of claim 1 wherein the organic layer is made of a bottom

Appl. No. 10/710,505
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anti-reflective coating (BARC).

7. (Original) The method of claim 1 wherein the step of forming the organic spacer includes a step of performing a dry etching process.

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8. (Currently amended) A method for fabricating a mask ROM, the method comprising:
providing a semiconductor substrate with a photoresist layer coated on the semiconductor substrate;

5 patterning the photoresist layer to form a photoresist pattern;

- 10 performing a first ion implantation process to form a ~~first doped region~~ lightly doped drain region in the semiconductor substrate not covered by the photoresist pattern;

performing a hot treatment process to harden the photoresist pattern;

forming an organic non-poly spacer on sidewall of the photoresist pattern;

- 15 performing a second ion implantation process to form a ~~second doped region~~ heavily doped region in the semiconductor substrate not covered by the photoresist pattern and the organic spacer;

stripping the photoresist pattern and the organic spacer; and

- 20 forming an insulating layer on the semiconductor substrate and an word line on the insulating layer.

9. (Original) The method of claim 8 wherein the hot treatment process is an UV curing process or a hot plate process.

- 25 10. (Canceled)

11. (Currently amended) The method of claim 8 wherein the ~~second~~ heavily doped region is an N⁺ doped region.

Appl. No. 10/710,505
Amdt. dated October 4, 2005
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12. (Original) The method of claim 8 wherein the organic spacer is made of a bottom anti-reflective coating (BARC) material.
- 5 13. (Original) The method of claim 8 wherein the step of forming the organic spacer includes a step of performing a dry etching process.